Oceanographic Data from Frobisher Bay in the Eastern Canadian Arctic for the Years 1982 and 1983

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These reports provide a medium for filing and archiving data compilations where little or no analysis is included. Such compilations commonly will have been prepared in support of other journal publications or reports. The subject matter of Data Reports reflects the broad interests and policies of the Department of Fisheries and Oceans, namely, fisheries management, technology and development, ocean sciences, and aquatic environments relevant to Canada.

Numbers 1-25 in this series were issued as Fisheries and Marine Service Data Records. Numbers 26-160 were issued as Department of Fisheries and the Environment, Fisheries and Marine Service Data Reports. The current series name was changed with report number 161.

The correct citation appears above the abstract of each report.

Rapport statistique canadien des sciences halieutiques et aquatiques

Ces rapports servent de base à la compilation des données de classement et d'archives pour lesquelles il y a peu ou point d'analyse. Cette compilation aura d'ordinaire été préparée pour appuyer d'autres publications ou rapports. Les sujets des Rapports statistiques reflètent la vaste gamme des intérêts et politiques du Ministère des Pêches et des Océans, notamment gestion des pêches, techniques et développement, sciences océaniques et environnements aquatiques, au Canada.

Les numéros 1 à 25 de cette série ont été publiés à titre de Records statistiques, Service des pêches et de la mer. Les numéros 26-160 ont été publiés à titre de Rapports statistiques du Service des pêches et de la mer, Ministère des Pêches et de l'Environnement. Le nom de la série a été modifié à partir du numéro 161.

Le titre exact paraît au haut du résumé de chaque rapport.

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CONTENTS

ABSTRACT	iv
RESUME	v
ACKNOWLEDGEMENTS	vi
INTRODUCTION	1
METHODS	2
REFERENCES	4
Figure 1. Map of Station Positions, Upper Frobisher Bay	6
Figure 2. Map of Station Positions, Lower Frobisher Bay	7
Table 1. Station locations	8
Table 2. Explanations of data headings	9
Table 3. Frobisher Bay ice data, 1982	11
Table 4. Frobisher Bay ice data, 1983	19
Table 5. Frobisher Bay oceanographic data, 1982	25
Table 6. Frobisher Bay oceanographic data, 1983	49

ABSTRACT

Lovrity, J. E. 1984. Oceanographic data from Frobisher Bay in the Eastern Canadian Arctic for the years 1982 and 1983. Can. Data Rep. Fish. Aquat. Sci. 432: vi + 57 p.

Tables of oceanographic data from 36 station occupations in Frobisher Bay include information on temperature, salinity, nitrite, nitrate, phosphate, silicate, ammonia and chlorophyll *a*, *b*, and *c*, phaeo-pigments, plant carotenoids and a few observations on particulate and dissolved organic carbon.

Key words: Arctic waters, Canada north coast, sea ice, temperature, salinity, nutrients, pigments, chlorophyll, carbon.

RESUME

Lovrity, J. E. 1984. Oceanographic data from Frobisher Bay in the Eastern Canadian Arctic for the years 1982 and 1983. Can. Data Rep. Fish. Aquat. Sci. 432: vi + 57 p.

Des tableaux de données océanographiques, recueillies lors de l'occupation de 36 stations dans la baie de Frobisher, regroupent de l'information sur la température, la salinité, les nitrites, les nitrates, les phosphates, les silicates, l'ammoniac, les chlorophylles *a*, *b* et *c*, les phaeopigments, les caroténoïdes végétaux de même que quelques observations sur le carbone organique particulaire et dissout.

Mots-clés: Les eaux arctiques, les côtes Canadiennes, glace de mer, temperature, salinité, éléments nutritifs, pigments, carbone.

Traduit par: C. Bédard, T. Cartier, F. Dugré et J. Laliberté

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INTRODUCTION

The collections of data included in this report were made to support ongoing marine ecological research by the Arctic Biological Station. This volume is the fourth in a series dealing with the same geographical area (Lovrity, 1981; 1982a, 1982b). Sampling was carried out in upper Frobisher Bay from February to September, 1982 and from March to August in 1983. Some of the data presented in this report were collected during oceanographic cruises on board the longliners M.V. Kingalik and M.V. Nanook in 1982. Otherwise, collecting was done in summer from the 6.7-metre freighter canoe Pseudocalanus, especially equipped for oceanographic work. In winter, snowmobiles were used on the sea ice.

The sea ice was sampled from early February to the middle of May in 1982 and in March 1983. The ice data obtained are placed at the beginning of the tables.

METHODS

Samples from the water column were collected with a Model 1010-5.0 (5 litre) Niskin sampling bottle. Ice core samples were collected with a 7.6-cm SIPRE (CRREL) corer. The cores were cut with a teflon coated saw, were thawed in stainless steel trays, and were subsampled for analytical work. Water sampling depths beneath the ice were measured from the lower surface of the sea ice. Total station depths were measured from the surface of the water in the ice hole. When collecting from boats, standard collecting procedures were followed. Water temperatures were measured using an immersion thermometer in the water bottle immediately after collecting the sample.

As soon as possible after collecting, water for pigment analyses was filtered through 47 mm, HA Millipore filters and the filters were frozen in a deep-freeze at -25°C along with subsamples of water for nutrient analyses. The frozen samples were stored from 2-3 days to several weeks before final analysis.

In the storage of samples for nutrient analyses, the recommendations of Macdonald and McLaughlin (1982) were followed. Phosphate-phosphorus, nitrite-nitrogen, nitrate-nitrogen, and silicate-silicon were analysed following Strickland and Parsons (1972). Silicate values obtained from the sea ice were omitted from this report because of potentially erroneous results from low salinity samples due to the deactivation of silicate on thawing (Macdonald and McLaughlin, 1982). For ammonia-nitrogen, the method of Pont et al. (1974) was used. Dissolved and particulate carbon analyses were carried out using

a revised procedure of several earlier methods (Bunch, 1979). Chlorophyll *a*, *b*, and *c*, plant carotenoids, and phaeo-pigments were determined following Strickland and Parsons 1972). Chlorophyll *a*, *b*, and *c*, values were corrected by using the equations of Jeffrey and Humphrey (1975). Plant carotenoids were calculated without regard to the taxonomic composition of the crop (Strickland and Parsons, 1972).

Salinity values were determined by using a Bissett-Berman Model 6230 laboratory salinometer (The Bissett-Berman Corp., 1970).

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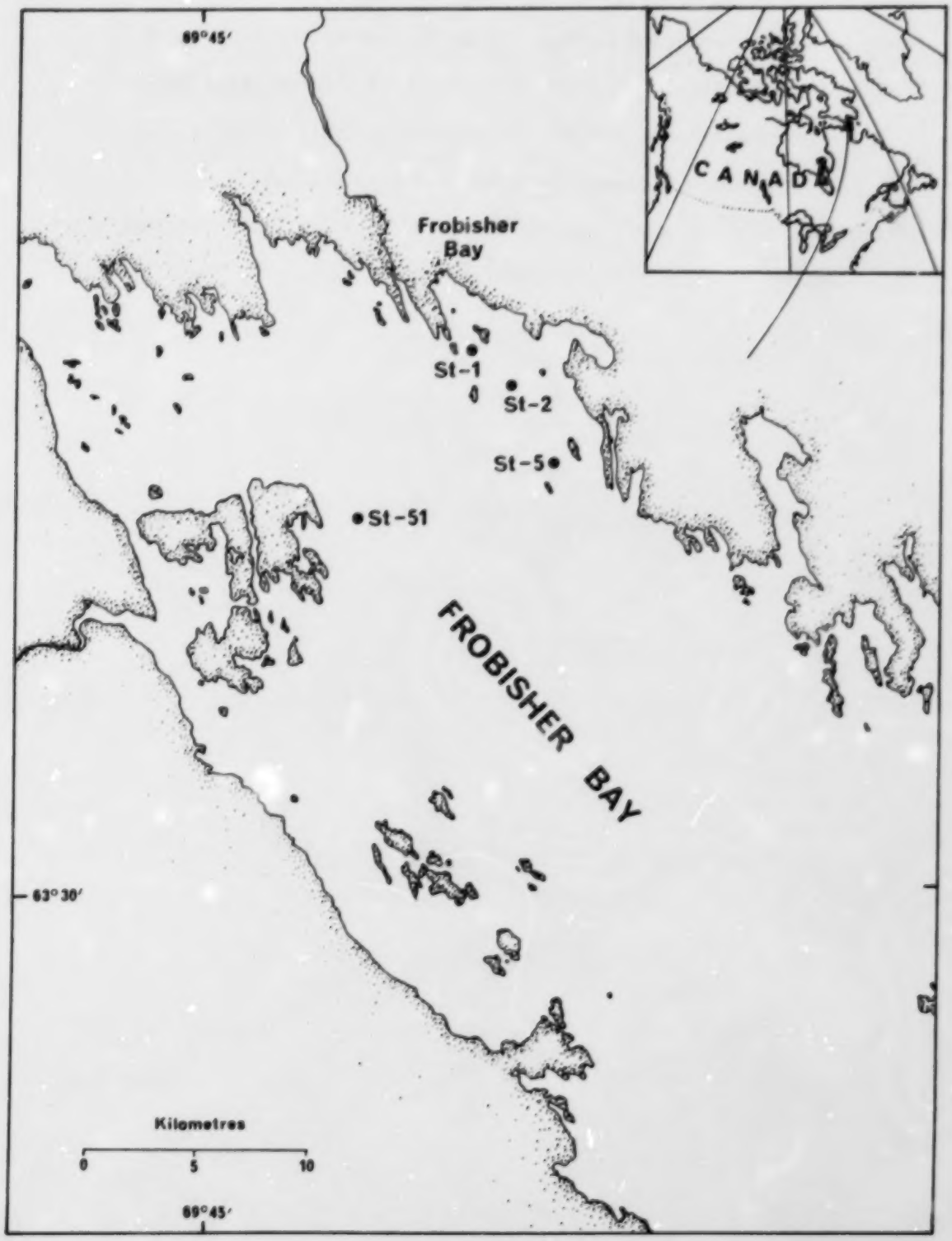

Fig. 1. Station Positions, Upper Frobisher Bay.

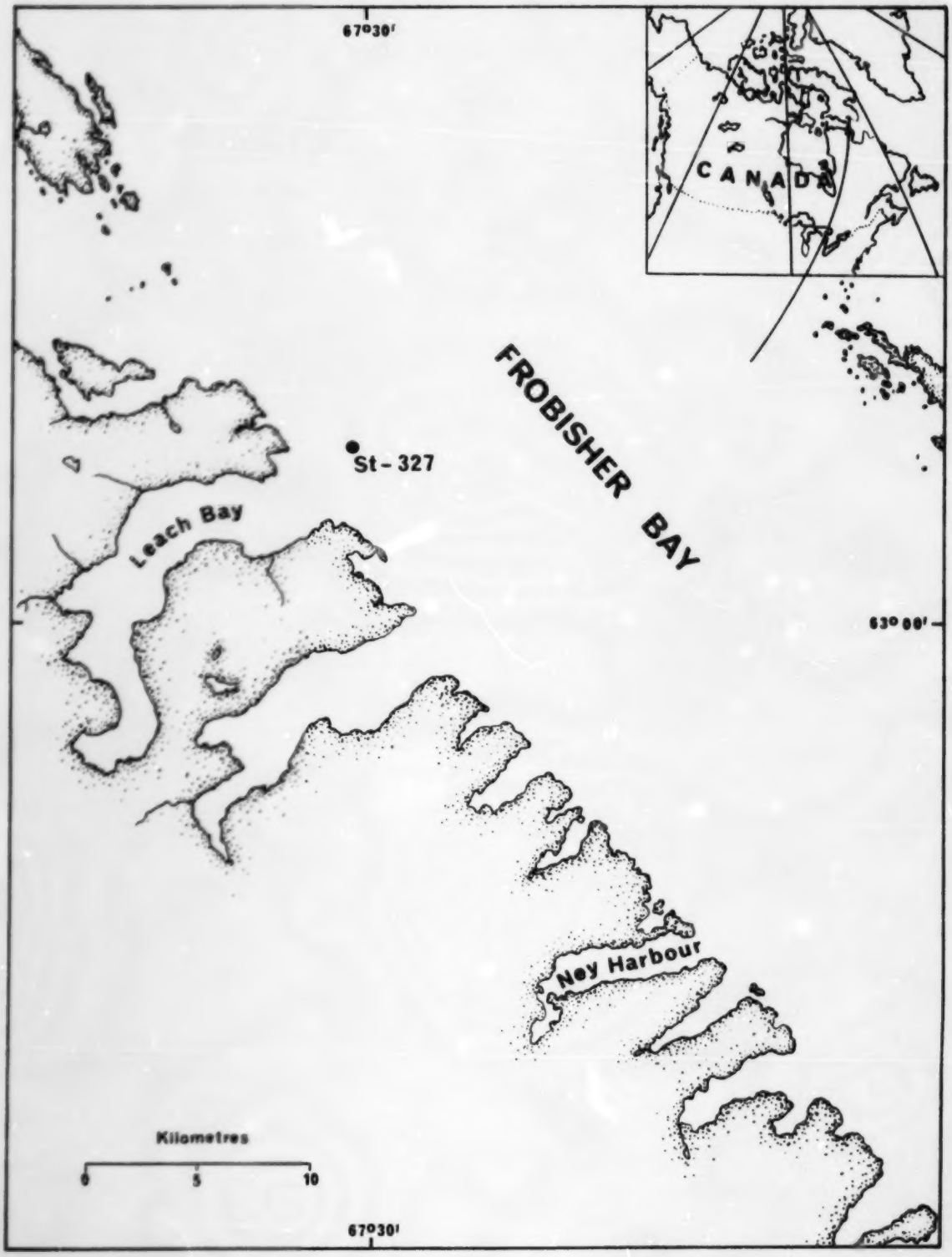

Fig. 2. Station Position, Lower Frobisher Bay.

Table 1. Station locations.

Station	N. Latitude	W. Longitude
82-1	63°42.8'	68°30.8'
82-5	63°40.2'	68°26.3'
82-5B	63°43.5'	68°31.7'
82-51	63°38.8'	68°35.6'
82-327	63°04'	67°31'
83-1	63°42.8'	68°30.8'
83-5	63°40.2'	68°26.3'
83-5B	63°43.5'	68°31.7'

Table 2. Explanations of data headings.

Table headings

Time:	Local, in hours
Station depth:	Depth to bottom, in metres
Air temp.:	Air temperature, in degrees Celsius
Cloud:	Cover, in eighths
Wind:	Direction, in compass points; speed, in km per hour
Ice cover:	Thickness of sea ice, in centimetres
Snow cover:	Thickness of snow, in centimetres
Secchi:	Secchi disc depth, in metres

Water properties

Depth (water):	Depth of sample, in metres
Depth (ice):	Thickness and location of sample, in centimetres
Temp.:	Water temperature, in degrees Celsius
Salinity:	As parts per thousand
NO_2-N:	Nitrite, as microgram-atoms per litre
NO_3-N:	Nitrate, as microgram-atoms per litre
PO_4-P:	Phosphate, as microgram-atoms per litre
SiO_3-Si:	Silicate, as microgram-atoms per litre
NH_3-N:	Ammonia, as microgram-atoms per litre
DOC:	Dissolved organic carbon, as milligrams per litre
POC:	Particulate organic carbon as micrograms per litre
Ch.a:	Chlorophyll a, as milligrams per cubic metre
Ch.b:	Chlorophyll b, as milligrams per cubic metre
Ch.c:	Chlorophyll c, as milligrams per cubic metre
Pl.Car:	Plant carotenoids, as m-SPU = milli-specified plant pigment unit
Phaeo:	Phaeo-pigments, as milligrams per cubic metre

Table 3.

Frobisher Bay ice data, 1982.

Station	Date	Time	Sta. depth	Air temp.
82-1	04 Feb 82	1200	45.5	-35
Cloud	**Wind**	**Ice cover**	**Snow cover**	**Secchi**
8	0	94	8	-

Depth	Temp.	Salinity	NO_2-N	NO_3-N	PO_4-P	SiO_3-Si	NH_3-N
0 -31.5	-	6.590	0.07	1.09	0.18	-	3.11
31.5-63	-	5.197	0.08	1.24	0.13	-	2.88
63 -94	-	6.182	0.07	1.23	0.24	-	3.56
89 -94	-	7.694	0.14	1.93	0.37	-	2.95

Depth	POC	DOC	Ch.a	Ch.b	Ch.c	Pl.carot.	Phaeo.
0 -31.5	-	-	0.80	0.64	0.91	-	-
31.5-63	-	-	0.46	0.65	0.48	-	-
63 -94	-	-	1.52	0.47	0.69	-	-
89 -94	-	-	3.38	0.68	1.95	-	-

Station	Date	Time	Sta. depth	Air temp.
82-1	24 Mar 82	1130	44	-23
Cloud	**Wind**	**Ice cover**	**Snow cover**	**Secchi**
4	0	141	5-28	8

Depth	Temp.	Salinity	NO_2-N	NO_3-N	PO_4-P	SiO_3-Si	NH_3-N
0- 47	-	5.079	0.07	0.98	0.09	-	3.40
47- 94	-	5.006	0.09	0.61	0.07	-	3.08
94-141	-	7.163	0.05	0.44	0.21	-	3.61
136-141	-	6.193	0.08	2.31	0.83	-	5.06

Depth	POC	DOC	Ch.a	Ch.b	Ch.c	Pl.carot.	Phaeo.
0- 47	-	-	0.72	1.08	1.70	-	-
47- 94	-	-	0.91	0.90	1.66	-	-
94-141	-	-	11.97	1.75	4.22	-	-
136-141	-	-	32.21	6.62	11.65	-	-

Station	Date	Time	Sta. depth	Air temp.
82-1	17 May 82	1115	48.5	-
Cloud	**Wind**	**Ice cover**	**Snow cover**	**Secchi**
4	NW12	159	50	8

Depth	Temp.	Salinity	NO_2-N	NO_3-N	PO_4-P	SiO_3-Si	NH_3-N
0- 53	-	4.894	0.04	0.00	0.08	-	2.43
53-106	-	5.667	0.06	0.10	0.13	-	5.26
106-159	-	6.151	0.02	1.00	0.27	-	2.00
154-159	-	4.625	0.05	1.75	0.33	-	4.04

Depth	POC	DOC	Ch.a	Ch.b	Ch.c	Pl.carot.	Phaeo.
0- 53	-	-	-	-	-	-	-
53-106	-	-	1.71	0.60	1.34	-	-
106-159	-	-	35.03	0.01	8.34	-	-
154-159	-	-	17.84	0.87	5.51	-	-

Station	Date	Time	Sta. depth	Air temp.
82-5	06 Feb 82	1200	50	-38
Cloud	**Wind**	**Ice cover**	**Snow cover**	**Secchi**
0	0	93	5	-

Depth	Temp.	Salinity	NO_2-N	NO_3-N	PO_4-P	SiO_3-Si	NH_3-N
0-31	-	7.758	0.11	0.62	0.16	-	2.07
31-62	-	6.729	0.04	0.47	0.09	-	2.17
62-93	-	7.694	0.04	0.75	0.14	-	2.07
88-93	-	10.0	0.28	2.91	0.67	-	2.04

Depth	POC	DOC	Ch.a	Ch.b	Ch.c	Pl.carot.	Phaeo.
0-31	-	-	0.76	0.67	1.26	-	-
31-62	-	-	1.45	1.52	2.54	-	-
62-93	-	-	10.37	1.03	3.94	-	-
88-93	-	-	91.28	0.00	23.71	-	-

Station	Date	Time	Sta. depth	Air temp.
82-5	24 Mar 82	1621	43	-23
Cloud	**Wind**	**Ice cover**	**Snow cover**	**Secchi**
4	0	139	20	8

Depth	Temp.	Salinity	NO_2-N	NO_3-N	PO_4-P	SiO_3-Si	NH_3-N
0- 46	-	6.095	0.06	1.09	0.19	-	2.91
46- 92	-	6.306	0.07	0.79	0.12	-	3.23
92-139	-	7.927	0.05	2.31	0.51	-	3.52
134-139	-	7.580	0.14	15.18	3.75	-	5.28

Depth	POC	DOC	Ch.a	Ch.b	Ch.c	Pl.carot.	Phaeo.
0- 46	-	-	0.55	0.85	1.44	-	-
46- 92	-	-	0.51	0.63	0.95	-	-
92-139	-	-	65.46	2.48	15.84	-	-
134-139	-	-	300.41	100.72	135.12	-	-

Station	Date	Time	Sta. depth	Air temp.
82-5	17 May 82	1300	56	-
Cloud	**Wind**	**Ice cover**	**Snow cover**	**Secchi**
4	NW12	144	31	8.5

Depth	Temp.	Salinity	NO_2-N	NO_3-N	PO_4-P	SiO_3-Si	NH_3-N
0- 48	-	5.817	0.04	0.29	0.05	-	4.80
48- 96	-	5.314	0.03	0.05	0.05	-	5.51
96-144	-	5.777	0.02	1.21	0.28	-	6.08
139-144	-	6.687	0.05	10.55	1.87	-	5.44

Depth	POC	DOC	Ch.a	Ch.b	Ch.c	Pl.carot.	Phaeo.
0- 48	-	-	1.97	1.46	2.10	-	-
48- 96	-	-	0.67	0.50	0.77	-	-
96-144	-	-	38.65	0.00	9.26	-	-
139-144	-	-	168.11	19.28	54.51	-	-

Table 4.

Frobisher Bay ice data, 1983.

Station	Date	Time	Sta. depth	Air temp.
83-1	12 Mar 83	1130	41	-12
Cloud	**Wind**	**Ice cover**	**Snow cover**	**Secchi**
8	SE16	142	15-34	11

Depth	Temp.	Salinity	NO_2-N	NO_3-N	PO_4-P	SiO_3-Si	NH_3-N
137-142	-	5.619	0.12	2.72	0.81	-	5.37

Depth	POC	DOC	Ch.a	Ch.b	Ch.c	Pl.carot.	Phaeo.
137-142	1080	2.78	43.43	0.89	7.79	12.00	-

Station	Date	Time	Sta. depth	Air temp.
83-1	19 Mar 83	1125	41	-30
Cloud	**Wind**	**Ice cover**	**Snow cover**	**Secchi**
-	-	144	-	-

Depth	Temp.	Salinity	NO_2-N	NO_3-N	PO_4-P	SiO_3-Si	NH_3-N
0- 48	-	6.722	0.04	0.63	0.24	-	4.59
48- 96	-	5.976	0.18	1.25	0.27	-	6.43
96-144	-	6.849	0.08	1.46	0.39	-	3.79

Depth	POC	DOC	Ch.a	Ch.b	Ch.c	Pl.carot.	Phaeo.
0- 48	-	-	0.66	0.36	0.12	0.22	-
48- 96	-	-	0.60	0.34	0.50	0.05	-
96-144	-	-	2.33	0.75	0.85	0.77	-

Station	Date	Time	Sta. depth	Air temp.
83-5	16 Mar 83	1435	46.5	-18
Cloud	**Wind**	**Ice cover**	**Snow cover**	**Secchi**
0	0	141	40	7

Depth	Temp.	Salinity	NO_2-N	NO_3-N	PO_4-P	SiO_3-Si	NH_3-N
136-141	-	7.376	0.13	2.35	0.47	-	4.32

Depth	POC	DOC	Ch.a	Ch.b	Ch.c	Pl.carot.	Phaeo.
136-141	-	-	9.93	0.41	2.21	2.71	-

Station	Date	Time	Sta. depth	Air temp.
83-5	19 Mar 83	1405	46.5	-30
Cloud	**Wind**	**Ice cover**	**Snow cover**	**Secchi**
-	-	152	-	-

Depth	Temp.	Salinity	NO_2-N	NO_3-N	PO_4-P	SiO_3-Si	NH_3-N
0- 51	-	6.372	0.17	0.78	0.20	-	5.27
51-102	-	6.658	0.06	0.65	0.20	-	3.40
102-152	-	7.990	0.04	0.55	0.27	-	5.03

Depth	POC	DOC	Ch.a	Ch.b	Ch.c	Pl.carot.	Phaeo.
0- 51	-	-	0.26	0.36	0.01	0.01	-
51-102	-	-	0.37	1.10	0.00	0.00	-
102-152	-	-	5.83	1.22	0.97	1.07	-

Table 5.

Frobisher Bay oceanographic data, 1982.

Station	Date	Time	Sta. depth	Air temp.
82-1	03 Feb 82	1303	45.5	-25
Cloud	**Wind**	**Ice cover**	**Snow cover**	**Secchi**
1	0	94	8	10

Depth	Temp.	Salinity	NO_2-N	NO_3-N	PO_4-P	SiO_3-Si	NH_3-N
0	-1.8	32.629	0.06	5.68	0.86	18.11	1.59
1	-1.8	33.126	0.02	5.76	0.91	32.60	1.65
3	-1.8	33.635	0.09	5.55	0.96	27.64	1.65
5	-1.8	33.277	0.13	4.99	0.84	22.31	1.65
7	-1.8	33.278	0.19	5.85	0.91	9.72	1.52
10	-1.8	33.346	0.07	5.57	0.91	9.15	1.78
20	-1.8	33.460	0.09	5.51	0.96	10.58	1.81
30	-1.8	33.458	0.18	5.91	0.91	11.15	2.17
40	-1.8	33.457	0.12	6.14	0.91	20.88	2.39

Depth	POC	DOC	Ch.a	Ch.b	Ch.c	Pl.carot.	Phaeo.
0	-	-	0.23	0.30	0.28	-	-
1	-	-	0.54	0.99	0.56	-	-
3	-	-	0.48	0.68	1.05	-	-
5	-	-	0.34	0.64	0.70	-	-
7	-	-	0.35	0.53	0.74	-	-
10	-	-	0.35	0.49	0.70	-	-
20	-	-	0.20	0.25	0.37	-	-
30	-	-	0.39	0.69	0.90	-	-
40	-	-	0.43	0.50	1.08	-	-

Station	Date	Time	Sta. depth	Air temp.
82-1	24 Mar 82	1120	44	-23
Cloud	**Wind**	**Ice cover**	**Snow cover**	**Secchi**
4	-	141	5-28	8

Depth	Temp.	Salinity	NO_2-N	NO_3-N	PO_4-P	SiO_3-Si	NH_3-N
0	-1.8	33.400	0.08	8.19	0.47	10.87	0.30
1	-1.8	33.352	0.05	8.05	0.50	17.26	0.58
3	-1.8	33.366	0.09	8.45	0.57	15.76	0.51
5	-1.8	33.386	0.10	10.18	0.76	17.45	0.51
7	-1.8	33.398	0.10	6.46	0.50	8.51	0.76
10	-1.8	33.428	0.86	8.78	0.57	11.05	0.48
20	-1.8	33.427	0.08	10.11	0.52	12.56	0.55
30	-1.8	33.423	0.09	6.63	0.67	9.36	0.72
40	-1.8	33.423	0.05	9.65	0.94	14.63	1.60

Depth	POC	DOC	Ch.a	Ch.b	Ch.c	Pl.carot.	Phaeo.
0	-	-	0.50	0.46	0.78	-	-
1	-	-	0.50	0.46	0.78	-	-
3	-	-	0.27	0.17	0.38	-	-
5	-	-	0.36	0.40	0.55	-	-
7	-	-	0.31	0.34	0.48	-	-
10	-	-	0.22	0.11	0.30	-	-
20	-	-	0.24	0.18	0.44	-	-
30	-	-	0.38	0.47	0.69	-	-
40	-	-	0.34	0.32	0.47	-	-

Station	Date	Time	Sta. depth	Air temp.
82-1	13 May 82	1315	48.5	0
Cloud	**Wind**	**Ice cover**	**Snow cover**	**Secchi**
7	SE26	159	50	8

Depth	Temp.	Salinity	NO_2-N	NO_3-N	PO_4-P	SiO_3-Si	NH_3-N
0	-1.6	31.671	0.15	6.15	0.50	10.97	0.28
1	-1.8	32.598	0.07	1.95	0.50	15.88	0.84
3	-1.8	33.207	0.04	2.66	0.68	17.45	3.05
5	-1.8	33.330	0.03	1.45	0.70	13.38	0.12
7	-1.8	33.342	0.04	2.32	0.73	10.51	0.00
10	-1.8	33.394	0.06	5.02	1.10	18.01	3.25
20	-1.8	33.295	0.06	2.82	0.93	12.55	0.00
30	-1.8	33.420	0.04	2.44	0.73	10.32	0.02
40	-1.8	33.450	0.09	4.92	1.10	19.95	0.00

Depth	POC	DOC	Ch.a	Ch.b	Ch.c	Pl.carot.	Phaeo.
0	-	-	1.02	0.66	1.06	-	-
1	-	-	0.64	0.47	0.91	-	-
3	-	-	0.70	0.43	1.02	-	-
5	-	-	0.83	0.84	1.17	-	-
7	-	-	0.42	0.40	0.77	-	-
10	-	-	0.42	0.31	0.69	-	-
20	-	-	0.77	0.94	1.39	-	-
30	-	-	0.82	0.89	1.63	-	-
40	-	-	0.46	0.56	0.93	-	-

Station	Date	Time	Sta. depth	Air temp.
82-1	23 Jul 82	1024	53	12
Cloud	**Wind**	**Ice cover**	**Snow cover**	**Secchi**
7	0	-	-	6

Depth	Temp.	Salinity	NO_2-N	NO_3-N	PO_4-P	SiO_3-Si	NH_3-N
0	4.2	28.974	0.03	0.08	0.27	6.00	0.61
1	2.6	28.553	0.02	0.12	0.12	3.80	0.95
3	1.2	29.953	0.00	0.11	0.17	4.60	0.42
5	0.0	31.252	0.01	0.00	0.19	7.20	0.39
7	-0.4	31.793	0.01	0.13	0.27	7.20	0.42
10	-0.6	32.167	0.02	0.16	0.22	6.50	1.11
20	-1.0	32.440	0.04	1.20	0.34	6.70	0.80
30	-1.1	32.486	0.02	1.16	0.41	7.50	1.11
40	-1.1	32.466	0.04	1.52	0.41	4.00	0.89

Depth	POC	DOC	Ch.a	Ch.b	Ch.c	Pl.carot.	Phaeo.
0	-	-	4.43	3.59	7.54	-	-
1	-	-	4.81	3.68	8.68	-	-
3	-	-	8.38	6.94	13.22	-	-
5	-	-	13.21	9.13	14.95	-	-
7	-	-	12.01	6.07	10.76	-	-
10	-	-	14.17	8.48	14.89	-	-
20	-	-	8.90	5.67	10.96	-	-
30	-	-	10.51	6.18	11.78	-	-
40	-	-	10.69	6.66	12.82	-	-

Station	Date	Time	Sta. depth	Air temp.
82-1	28 Jul 82	1045	42	8
Cloud	**Wind**	**Ice cover**	**Snow cover**	**Secchi**
5	SW 3	-	-	7.5

Depth	Temp.	Salinity	NO_2-N	NO_3-N	PO_4-P	SiO_3-Si	NH_3-N
10	-0.5	-	-	-	-	-	-

Depth	POC	DOC	Ch.a	Ch.b	Ch.c	Pl.carot.	Phaeo.
10	-	-	-	-	-	-	-

Station	Date	Time	Sta. depth	Air temp.
82-1	03 Aug 82	0840	46	6
Cloud	**Wind**	**Ice cover**	**Snow cover**	**Secchi**
2	NE 3	-	-	7.2

Depth	Temp.	Salinity	NO_2-N	NO_3-N	PO_4-P	SiO_3-Si	NH_3-N
0	2.3	-	-	-	-	-	-
1	1.3	-	-	-	-	-	-
3	0.8	-	-	-	-	-	-
4	0.5	-	-	-	-	-	-
7	0.2	-	-	-	-	-	-
10	0.0	-	-	-	-	-	-
20	-0.3	-	-	-	-	-	-
30	-0.5	-	-	-	-	-	-

Depth	POC	DOC	Ch.a	Ch.b	Ch.c	Pl.carot.	Phaeo.
0	-	-	-	-	-	-	-
1	-	-	-	-	-	-	-
3	-	-	-	-	-	-	-
4	-	-	-	-	-	-	-
7	-	-	-	-	-	-	-
10	-	-	-	-	-	-	-
20	-	-	-	-	-	-	-
30	-	-	-	-	-	-	-
40	-	-	-	-	-	-	-

Station	Date	Time	Sta. depth	Air temp.
82-1	06 Aug 82	0840	50	9
Cloud	**Wind**	**Ice cover**	**Snow cover**	**Secchi**
1	NW36	-	-	6

Depth	Temp.	Salinity	NO_2-N	NO_3-N	PO_4-P	SiO_3-Si	NH_3-N
0	-0.1	32.366	0.03	1.67	0.48	5.80	1.36
1	-0.1	32.378	0.06	1.50	0.48	6.20	0.91
3	-0.1	32.379	0.05	1.74	0.56	7.10	0.72
5	-0.2	32.396	0.05	1.76	0.60	7.80	1.29
7	-0.3	32.358	0.05	1.99	0.58	8.70	0.64
10	-0.6	32.415	0.06	2.11	0.63	6.70	1.29
20	-0.8	32.466	0.05	2.57	0.65	6.70	0.91
30	-1.0	32.511	0.03	2.91	0.65	8.40	0.95
40	-0.9	32.704	0.05	3.46	0.63	7.20	1.21

Depth	POC	DOC	Ch.a	Ch.b	Ch.c	Pl.carot.	Phaeo.
0	-	-	6.61	0.31	3.18	-	22.05
1	-	-	7.13	0.00	0.73	-	20.25
3	-	-	8.82	1.69	5.00	-	18.17
5	-	-	8.08	1.09	3.94	-	27.07
7	-	-	8.58	1.93	4.75	-	15.30
10	-	-	7.51	0.00	2.11	-	21.64
20	-	-	7.29	0.00	1.85	-	35.34
30	-	-	5.91	0.61	2.58	-	11.85
40	-	-	6.77	0.56	2.92	-	0.00

Station	Date	Time	Sta. depth	Air temp.
82-1	10 Aug 82	0815	45	7.6
Cloud	**Wind**	**Ice cover**	**Snow cover**	**Secchi**
2	SE 7	-	-	8.5

Depth	Temp.	Salinity	NO_2-N	NO_3-N	PO_4-P	SiO_3-Si	NH_3-N
0	2.50	21.501	0.03	0.64	0.35	3.40	0.95
25.5	-0.55	32.449	0.05	1.75	0.64	3.71	1.09

Depth	POC	DOC	Ch.a	Ch.b	Ch.c	Pl.carot.	Phaeo.
0	-	-	2.87	1.92	5.63	-	1.04
25.5	-	-	7.04	1.86	4.91	-	1.04

Station	Date	Time	Sta. depth	Air temp.
82-1	13 Aug 82	0924	45	7
Cloud	**Wind**	**Ice cover**	**Snow cover**	**Secchi**
2	NW27	-	-	8

Depth	Temp.	Salinity	NO_2-N	NO_3-N	PO_4-P	SiO_3-Si	NH_3-N
0	1.0	32.260	0.02	0.35	0.35	5.47	0.87
1	0.1	32.261	0.03	0.52	0.22	2.68	0.53
3	-0.1	32.290	0.03	0.36	0.50	7.43	0.38
5	-0.2	32.423	0.02	0.79	0.40	6.91	0.49
7	-0.5	32.389	0.01	0.91	0.42	7.01	0.80
10	-0.8	32.456	0.05	0.80	0.35	7.74	0.83
20	-0.9	32.492	0.00	1.06	0.42	7.32	1.17
30	-1.0	32.480	0.00	2.86	0.27	6.91	1.52
40	-0.9	32.553	0.01	1.72	0.62	4.54	1.29

Depth	POC	DOC	Ch.a	Ch.b	Ch.c	Pl.carot.	Phaeo.
0	-	-	6.96	0.00	1.19	-	20.84
1	-	-	6.87	0.00	2.80	-	24.38
3	-	-	6.43	0.00	3.11	-	13.28
5	-	-	6.83	0.00	2.24	-	15.07
7	-	-	8.13	0.22	5.43	-	14.59
10	-	-	6.12	0.00	2.78	-	17.72
20	-	-	6.74	0.00	2.66	-	13.30
30	-	-	4.24	0.00	1.56	-	19.85
40	-	-	3.56	1.44	3.48	-	15.61

Station	Date	Time	Sta. depth	Air temp.
82-1	17 Aug 82	1015	46	4.4
Cloud	**Wind**	**Ice cover**	**Snow cover**	**Secchi**
6	SW 5	-	-	4

Depth	Temp.	Salinity	NO_2-N	NO_3-N	PO_4-P	SiO_3-Si	NH_3-N
0	4.0	-	-	-	-	-	-
5	1.2	-	-	-	-	-	-
10	0.8	-	-	-	-	-	-
15	-0.1	-	-	-	-	-	-
20	-0.7	-	-	-	-	-	-
25	-0.7	-	-	-	-	-	-
30	-0.9	-	-	-	-	-	-
35	-0.9	-	-	-	-	-	-
40	-0.9	-	-	-	-	-	-

Depth	POC	DOC	Ch.a	Ch.b	Ch.c	Pl.carot.	Phaeo.
0	-	-	-	-	-	-	-
5	-	-	-	-	-	-	-
10	-	-	-	-	-	-	-
15	-	-	-	-	-	-	-
20	-	-	-	-	-	-	-
25	-	-	-	-	-	-	-
30	-	-	-	-	-	-	-
35	-	-	-	-	-	-	-
40	-	-	-	-	-	-	-

Station	Date	Time	Sta. depth	Air temp.
82-1	20 Aug 82	1000	-	7.2
Cloud	**Wind**	**Ice cover**	**Snow cover**	**Secchi**
5	0	-	-	7.5

Depth	Temp.	Salinity	NO_2-N	NO_3-N	PO_4-P	SiO_3-Si	NH_3-N
0	1.5	30.391	0.00	0.35	0.47	1.65	0.82
1	0.7	32.006	0.01	0.50	0.47	0.52	0.62
3	0.4	32.137	0.03	0.64	0.55	1.24	1.47
5	0.1	32.315	0.01	0.57	0.57	1.03	0.54
7	-0.5	32.412	0.02	1.02	0.60	3.40	1.26
10	-0.6	32.462	0.03	2.05	0.74	3.92	1.41
20	-0.8	32.515	0.04	1.78	0.84	3.09	1.54
30	-0.8	32.523	0.05	1.73	0.89	6.81	1.31
40	-0.7	32.519	0.05	1.80	0.92	3.20	1.63

Depth	POC	DOC	Ch.a	Ch.b	Ch.c	Pl.carot.	Phaeo.
0	-	-	2.54	0.23	1.10	-	6.02
1	-	-	3.59	0.00	1.36	-	2.02
3	-	-	5.07	0.00	1.62	-	5.82
5	-	-	4.60	0.00	1.60	-	3.26
7	-	-	4.62	0.38	2.26	-	4.94
10	-	-	3.42	0.00	0.98	-	5.38
20	-	-	2.57	0.00	0.88	-	4.43
30	-	-	2.52	0.38	1.64	-	5.34
40	-	-	2.96	1.14	2.49	-	16.85

Station	Date	Time	Sta. depth	Air temp.
82-1	24 Aug 82	0930	47	7.0
Cloud	**Wind**	**Ice cover**	**Snow cover**	**Secchi**
3	S 3	-	-	7

Depth	Temp.	Salinity	NO_2-N	NO_3-N	PO_4-P	SiO_3-Si	NH_3-N
0	4.2	-	-	-	-	-	-
5	0.3	-	-	-	-	-	-
10	-0.1	-	-	-	-	-	-
15	-0.2	-	-	-	-	-	-
20	-0.3	-	-	-	-	-	-
25	-0.3		-	-	-	-	-
30	-0.5	-	-	-	-	-	-
35	-0.5	-	-	-	-	-	-
40	-0.3	-					

Depth	POC	DOC	Ch.a	Ch.b	Ch.c	Pl.carot.	Phaeo.
0	-	-	-	-	-	-	-
5	-	-	-	-	-	-	-
10	-	-	-	-	-	-	-
15	-	-	-	-	-	-	-
20	-	-	-	-	-	-	-
25	-	-	-	-	-	-	-
30	-	-	-	-	-	-	-
35	-	-	-	-	-	-	-
40	-	-	-	-			

Station	Date	Time	Sta. depth	Air temp.
82-1	27 Aug 82	0920	44	6.6
Cloud	**Wind**	**Ice cover**	**Snow cover**	**Secchi**
3	0	-	-	5

Depth	Temp.	Salinity	NO_2-N	NO_3-N	PO_4-P	SiO_3-Si	NH_3-N
0	2.7	30.387	0.00	0.07	0.07	0.00	3.12
1	2.1	31.032	0.00	0.07	0.12	1.60	1.13
3	1.5	31.608	0.00	0.05	0.15	1.90	0.92
5	0.5	32.132	0.00	0.05	0.19	0.50	0.74
7	0.2	32.278	0.00	0.09	0.17	3.30	-
10	-0.2	32.436	0.00	1.09	0.46	5.10	0.92
20	-0.3	32.536	0.00	1.31	0.41	7.40	2.41
30	-0.5	32.554	0.00	2.67	0.85	9.91	1.91
40	-0.5	32.612	0.00	1.86	0.51	6.20	2.30

Depth	POC	DOC	Ch.a	Ch.b	Ch.c	Pl.carot.	Phaeo.
0	-	-	2.69	0.42	1.45	-	0.00
1	-	-	2.94	0.83	1.95	-	0.00
3	-	-	3.29	0.79	1.71	-	0.00
5	-	-	6.06	0.19	2.23	-	0.00
7	-	-	8.19	0.51	3.43	-	0.00
10	-	-	6.40	0.33	2.19	-	0.00
20	-	-	2.91	0.48	1.71	-	0.00
30	-	-	2.52	1.05	1.73	-	0.00
40	-	-	1.52	0.72	1.94	-	11.92

Station	Date	Time	Sta. depth	Air temp.
82-1	01 Sep 82	0950	46	5
Cloud	**Wind**	**Ice cover**	**Snow cover**	**Secchi**
0	SW 0.5	-	-	-

Depth	Temp.	Salinity	NO_2-N	NO_3-N	PO_4-P	SiO_3-Si	NH_3-N
0	2.5	-	-	-	-	-	-
5	0.4	-	-	-	-	-	-
10	-0.4	-	-	-	-	-	-
15	-0.4	-	-	-	-	-	-
20	-0.4	-	-	-	-	-	-
25	-0.4	-	-	-	-	-	-
30	-0.5	-	-	-	-	-	-
35	-0.5	-	-	-	-	-	-
40	-0.5	-	-	-	-	-	-

Depth	POC	DOC	Ch.a	Ch.b	Ch.c	Pl.carot.	Phaeo.
0	-	-	-	-	-	-	-
5	-	-	-	-	-	-	-
10	-	-	-	-	-	-	-
15	-	-	-	-	-	-	-
20	-	-	-	-	-	-	-
25	-	-	-	-	-	-	-
30	-	-	-	-	-	-	-
35	-	-	-	-	-	-	-
40	-	-	-	-	-	-	-

Station	Date	Time	Sta. depth	Air temp.
82-1	04 Sep 82	1130	48	-
Cloud	**Wind**	**Ice cover**	**Snow cover**	**Secchi**
8	0	-	-	5

Depth	Temp.	Salinity	NO_2-N	NO_3-N	PO_4-P	SiO_3-Si	NH_3-N
0	1.8	30.324	0.00	0.37	0.20	0.31	0.50
1	1.0	32.102	0.02	0.12	0.27	1.13	0.09
3	0.7	32.365	0.00	0.14	0.32	0.83	0.09
5	0.5	32.413	0.01	0.06	0.32	0.31	0.05
7	0.2	32.555	0.06	0.61	0.30	3.20	0.16
10	0.0	32.581	0.07	1.34	0.42	5.05	0.29
20	-0.1	32.656	0.08	2.50	0.57	6.70	0.81
30	-0.3	32.627	0.09	3.12	0.62	8.97	1.50
40	-1.0	32.637	0.07	3.32	0.60	6.19	1.16

Depth	POC	DOC	Ch.a	Ch.b	Ch.c	Pl.carot.	Phaeo.
0	-	-	1.54	0.50	1.20	-	0.00
1	-	-	5.09	0.30	1.91	-	0.00
3	-	-	6.31	0.61	2.69	-	0.00
5	-	-	6.63	0.21	2.28	-	0.00
7	-	-	6.51	0.25	2.42	-	0.00
10	-	-	6.56	0.42	2.45	-	0.00
20	-	-	5.01	0.59	2.29	-	0.00
30	-	-	3.12	0.76	1.77	-	0.00
40	-	-	2.73	0.49	2.35	-	0.00

Station	Date	Time	Sta. depth	Air temp.
82-5	07 Feb 82	1325	58	-40
Cloud	**Wind**	**Ice cover**	**Snow cover**	**Secchi**
-	0	91	5	-

Depth	Temp.	Salinity	NO_2-N	NO_3-N	PO_4-P	SiO_3-Si	NH_3-N
0	-1.8	33.190	0.07	2.58	0.42	8.89	1.21
1	-1.8	33.262	0.06	7.90	0.79	21.10	1.21
3	-1.8	33.211	0.05	7.73	0.44	18.86	0.95
5	-1.8	33.219	0.05	7.01	0.74	12.02	1.14
7	-1.8	33.241	0.08	5.95	0.79	9.58	1.28
10	-1.8	33.262	0.07	3.53	0.56	10.75	1.04
20	-1.8	33.278	0.06	5.07	0.67	10.65	1.38
30	-1.8	33.218	0.06	4.54	0.56	11.53	1.08
50	-1.8	33.226	0.07	4.25	0.70	14.26	1.54

Depth	POC	DOC	Ch.a	Ch.b	Ch.c	Pl.carot.	Phaeo.
0	-	-	0.33	0.39	0.74	-	-
1	-	-	0.53	0.73	1.25	-	-
3	-	-	0.60	0.93	1.39	-	-
5	-	-	0.59	0.97	1.49	-	-
7	-	-	0.27	0.43	0.63	-	-
10	-	-	0.45	0.64	1.08	-	-
20	-	-	0.54	0.91	1.30	-	-
30	-	-	0.28	0.40	0.52	-	-
50	-	-	0.45	0.70	1.00	-	-

Station	Date	Time	Sta. depth	Air temp.
82-5	26 Mar 82	1605	43	-30
Cloud	**Wind**	**Ice cover**	**Snow cover**	**Secchi**
0	NW 26	139	25	8

Depth	Temp.	Salinity	NO_2-N	NO_3-N	PO_4-P	SiO_3-Si	NH_3-N
0	-1.8	33.376	0.09	6.02	0.97	10.45	0.99
1	-1.8	33.364	0.10	8.26	1.14	13.78	0.90
3	-1.8	33.351	0.08	7.28	0.83	9.97	0.45
5	-1.8	33.340	0.08	5.73	0.81	12.60	0.42
7	-1.8	33.306	0.09	7.13	0.58	16.90	0.58
10	-1.8	33.367	0.05	6.06	0.72	10.55	0.48
20	-1.8	33.379	0.06	6.23	0.56	11.24	0.96
30	-1.8	33.366	0.06	6.53	1.11	10.65	0.70
40	-1.8	33.391	0.10	5.97	1.00	9.28	0.64

Depth	POC	DOC	Ch.a	Ch.b	Ch.c	Pl.carot.	Phaeo.
0	-	-	0.46	0.56	0.87	-	-
1	-	-	0.23	0.25	0.30	-	-
3	-	-	0.33	0.47	0.54	-	-
5	-	-	0.32	0.55	0.75	-	-
7	-	-	0.20	0.25	0.43	-	-
10	-	-	0.23	0.28	0.40	-	-
20	-	-	0.75	1.07	1.64	-	-
30	-	-	0.30	0.46	0.73	-	-
40	-	-	0.31	0.37	0.64	-	-

Station	Date	Time	Sta. depth	Air temp.
82-5	14 May 82	1515	56	-12
Cloud	**Wind**	**Ice cover**	**Snow cover**	**Secchi**
8	0	144	31	8.5

Depth	Temp.	Salinity	NO_2-N	NO_3-N	PO_4-P	SiO_3-Si	NH_3-N
0	-1.7	33.390	0.01	4.71	0.85	10.90	0.50
1	-1.8	33.391	0.04	8.93	0.97	26.13	0.27
3	-1.8	33.404	0.02	8.03	1.02	21.11	0.27
5	-1.8	33.399	0.07	6.84	1.02	17.56	0.17
7	-1.8	33.400	0.03	5.09	0.76	9.17	0.50
10	-1.8	33.397	0.00	5.14	0.99	9.44	0.90
20	-1.8	33.405	0.01	5.71	0.85	11.26	0.30
30	-1.8	33.412	0.06	7.88	1.04	13.63	0.30
40	-1.8	33.399	0.04	9.04	1.09	19.02	0.37

Depth	POC	DOC	Ch.a	Ch.b	Ch.c	Pl.carot.	Phaeo.
0	-	-	0.17	0.00	0.18	-	-
1	-	-	0.56	0.69	1.08	-	-
3	-	-	0.19	0.50	0.00	-	-
5	-	-	0.45	0.71	0.40	-	-
7	-	-	0.48	0.19	1.54	-	-
10	-	-	0.48	0.40	0.52	-	-
20	-	-	0.42	0.44	0.40	-	-
30	-	-	0.37	0.27	0.36	-	-
40	-	-	0.00	0.00	0.00	-	-

Station	Date	Time	Sta. depth	Air temp.
82-5B	05 Aug 82	0900	26	9
Cloud	**Wind**	**Ice cover**	**Snow cover**	**Secchi**
8	NW 30	-	-	5

Depth	Temp.	Salinity	NO_2-N	NO_3-N	PO_4-P	SiO_3-Si	NH_3-N
0	1.0	32.296	0.00	0.81	0.51	4.10	0.92
25	-0.7	-	-	-	-	-	-

Depth	POC	DOC	Ch.a	Ch.b	Ch.c	Pl.carot.	Phaeo.
0	-	-	8.95	1.45	5.76	-	-
25	-	-	-	-	-	-	-

Station	Date	Time	Sta. depth	Air temp.
82-5B	22 Aug 82	0835	26	4.6
Cloud	**Wind**	**Ice cover**	**Snow cover**	**Secchi**
8	SE 3	-	-	6

Depth	Temp.	Salinity	NO_2-N	NO_3-N	PO_4-P	SiO_3-Si	NH_3-N
0	1.5	29.890	0.00	0.36	0.34	6.80	1.35
25	-1.0	-	-	-	-	-	-

Depth	POC	DOC	Ch.a	Ch.b	Ch.c	Pl.carot.	Phaeo.
0	-	-	1.51	0.20	1.44	-	-
25	-	-	-	-	-	-	-

Station	Date	Time	Sta. depth	Air temp.
82-51	01 Aug 82	1010	-	8
Cloud	**Wind**	**Ice cover**	**Snow cover**	**Secchi**
8	NW 10	-	-	6

Depth	Temp.	Salinity	NO_2-N	NO_3-N	PO_4-P	SiO_3-Si	NH_3-N
0	3.5	29.701	0.00	0.11	0.27	2.37	0.91
6	0.0	32.036	0.00	0.07	0.25	0.00	0.61
12	-0.1	32.401	0.00	0.07	0.25	1.65	-
18	-0.2	32.271	0.00	0.16	0.40	2.68	1.74
24	-0.5	32.695	0.00	1.04	0.40	2.48	1.29
30	-0.9	32.505	0.05	4.23	0.74	7.84	1.52
36	-1.2	32.456	0.01	2.86	0.69	4.95	1.29
54	-1.2	32.700	0.00	2.96	0.60	4.33	0.68
72	-1.2	32.600	0.00	2.08	0.62	2.68	3.18

Depth	POC	DOC	Ch.a	Ch.b	Ch.c	Pl.carot.	Phaeo.
0	-	-	9.42	9.50	14.60	-	-
6	-	-	15.83	8.23	16.22	-	-
12	-	-	14.89	6.78	14.03	-	-
18	-	-	15.57	7.99	16.05	-	-
24	-	-	12.05	7.44	13.15	-	-
30	-	-	11.61	6.81	11.07	-	-
36	-	-	7.87	7.76	12.36	-	-
54	-	-	2.59	2.85	3.60	-	-
72	-	-	7.07	7.70	12.75	-	-

Station	Date	Time	Sta. depth	Air temp.
82-327	14 Aug 82	1300	700+	-
Cloud	**Wind**	**Ice cover**	**Snow cover**	**Secchi**
4	SE 15	-	-	6.5

Depth	Temp.	Salinity	NO_2-N	NO_3-N	PO_4-P	SiO_3-Si	NH_3-N
0	0.2	32.516	-	-	-	-	-
1	0.1	32.562	-	-	-	-	-
5	0.0	32.580	-	-	-	-	-
10	-0.2	32.592	-	-	-	-	-
20	-0.5	32.654	-	-	-	-	-
30	-	-	-	-	-	-	-
40	-0.2	32.708	-	-	-	-	-
50	-	-	-	-	-	-	-
60	-0.6	32.717	-	-	-	-	-
75	-	-	-	-	-	-	-
80	-0.8	32.743	-	-	-	-	-
100	-1.0	32.819	-	-	-	-	-
200	-1.4	33.147	-	-	-	-	-
300	-1.6	33.303	-	-	-	-	-
400	-1.6	33.489	-	-	-	-	-
500	-1.6	33.478	-	-	-	-	-

Depth	POC	DOC	Ch.a	Ch.b	Ch.c	Pl.carot.	Phaeo.
0	-	-	4.66	0.50	2.79	-	5.03
1	-	-	-	-	-	-	-
5	-	-	4.20	0.00	1.73	-	3.51
10	-	-	4.56	0.37	2.64	-	7.12
20	-	-	3.01	0.00	1.40	-	3.59
30	-	-	4.65	0.00	2.41	-	5.39
40	-	-	4.07	0.89	2.99	-	7.80
50	-	-	3.37	0.42	2.06	-	3.56
60	-	-	-	-	-	-	-
75	-	-	1.74	0.18	1.49	-	2.44
80	-	-	-	-	-	-	-
100	-	-	-	-	-	-	-
200	-	-	-	-	-	-	-
300	-	-	-	-	-	-	-
400	-	-	0.58	0.42	1.65	-	3.52
500	-	-	-	-	-	-	-

Station	Date	Time	Sta. depth	Air temp.
82-327	03 Sep 82	1030	625+	8
Cloud	**Wind**	**Ice cover**	**Snow cover**	**Secchi**
2	SE 5	-	-	-

Depth	Temp.	Salinity	NO_2-N	NO_3-N	PO_4-P	SiO_3-Si	NH_3-N
0	0.50	32.629	-	-	-	-	-
1	0.50	32.626	-	-	-	-	-
3	0.50	32.629	-	-	-	-	-
5	0.60	32.627	-	-	-	-	-
10	0.35	-	-	-	-	-	-
20	-0.20	32.652	-	-	-	-	-
40	-0.55	32.698	-	-	-	-	-
60	-0.70	32.734	-	-	-	-	-
80	-0.70	32.748	-	-	-	-	-
100	-0.70	32.777	-	-	-	-	-
200	-1.00	32.987	-	-	-	-	-
300	-1.50	33.244	-	-	-	-	-
400	-1.50	33.319	-	-	-	-	-
500	-1.60	33.354	-	-	-	-	-

Depth	POC	DOC	Ch.a	Ch.b	Ch.c	Pl.carot.	Phaeo.
0	-	-	-	-	-	-	-
1	-	-	-	-	-	-	-
3	-	-	-	-	-	-	-
5	-	-	-	-	-	-	-
10	-	-	-	-	-	-	-
20	-	-	-	-	-	-	-
40	-	-	-	-	-	-	-
60	-	-	-	-	-	-	-
80	-	-	-	-	-	-	-
100	-	-	-	-	-	-	-
200	-	-	-	-	-	-	-
300	-	-	-	-	-	-	-
400	-	-	-	-	-	-	-
500	-	-	-	-	-	-	-

Table 6.

Frobisher Bay oceanographic data, 1983.

Station	Date	Time	Sta. depth	Air temp.
83-1	12 Mar 83	1141	41	-12
Cloud	**Wind**	**Ice cover**	**Snow cover**	**Secchi**
8	SE 16	140	15-34	11

Depth	Temp.	Salinity	NO_2-N	NO_3-N	PO_4-P	SiO_3-Si	NH_3-N
0	-1.75	33.342	0.08	6.32	1.13	7.76	1.21
1	-1.75	33.520	0.07	4.98	1.27	9.10	0.93
3	-1.75	33.277	0.07	5.48	1.15	11.82	0.98
5	-1.75	33.273	0.07	3.28	0.98	5.13	1.08
7	-1.75	33.316	0.04	3.18	0.86	6.30	1.31
10	-1.75	33.270	0.05	5.07	0.98	7.07	1.21
20	-1.80	33.293	0.08	5.38	1.03	7.94	1.23
30	-1.80	33.301	0.07	3.64	1.00	7.94	1.39
40	-1.80	33.322	0.08	5.42	0.88	5.23	1.72

Depth	POC	DOC	Ch.a	Ch.b	Ch.c	Pl.carot.	Phaeo.
0	90	1.36	0.00	0.00	0.00	2.12	-
1	100	1.20	0.00	0.00	0.00	0.96	-
3	100	1.07	0.00	0.00	0.00	0.78	-
5	130	1.20	0.00	0.00	0.00	1.51	-
7	150	1.20	0.00	0.00	0.00	1.79	-
10	70	1.16	0.00	0.00	0.00	2.43	-
20	130	1.17	0.05	0.11	0.00	0.19	-
30	70	1.25	0.10	0.13	0.15	0.00	-
40	170	1.13	0.10	0.17	0.00	0.14	-

Station	Date	Time	Sta. depth	Air temp.
83-1	05 Aug 83	0955	41	9.4
Cloud	**Wind**	**Ice cover**	**Snow cover**	**Secchi**
3	SE 5	-	-	-

Depth	Temp.	Salinity	NO_2-N	NO_3-N	PO_4-P	SiO_3-Si	NH_3-N
0	2.80	22.301	0.03	3.11	0.51	1.36	0.62
1	0.10	30.707	0.07	4.42	0.75	1.08	1.60
3	-0.60	31.962	0.06	4.04	0.73	1.23	0.76
5	-0.80	32.349	0.05	3.45	0.82	1.17	0.84
7	-0.80	32.355	0.05	4.63	0.80	1.19	0.73
10	-0.90	32.402	0.05	3.74	0.82	1.23	0.51
20	-0.85	32.425	0.07	5.29	0.75	1.55	1.35
30	-1.20	32.468	0.03	3.83	0.77	1.56	0.80
40	-1.20	32.483	0.03	3.95	0.75	1.91	1.02

Depth	POC	DOC	Ch.a	Ch.b	Ch.c	Pl.carot.	Phaeo.
0	-	-	1.18	0.15	0.62	0.29	0.00
1	-	-	2.15	0.14	1.03	0.41	0.51
3	-	-	2.50	0.00	0.86	0.58	0.61
5	-	-	2.66	0.10	0.88	0.62	0.53
7	-	-	2.66	0.19	0.96	0.54	0.76
10	-	-	2.66	0.09	1.00	0.56	0.53
20	-	-	2.60	0.21	1.09	0.60	0.44
30	-	-	1.74	0.26	0.76	0.37	0.27
40	-	-	1.52	0.17	0.74	0.37	0.48

Thin sheet of ice formed overnight.

Station	Date	Time	Sta. depth	Air temp.
83-1	10 Aug 83	0932	42	4.2
Cloud	**Wind**	**Ice cover**	**Snow cover**	**Secchi**
7	SE 2	-	-	6

Depth	Temp.	Salinity	NO_2-N	NO_3-N	PO_4-P	SiO_3-Si	NH_3-N
0	1.30	30.621	0.01	0.14	0.48	0.18	0.22
1	-	30.768	0.01	0.21	-	0.25	0.22
3	0.34	31.905	0.00	0.48	0.53	0.53	0.02
5	0.20	32.044	0.01	0.45	0.48	0.44	0.25
7	0.18	32.077	0.01	0.49	0.48	0.20	0.22
10	-0.48	32.297	0.02	2.54	0.73	0.55	0.36
20	-0.48	32.361	0.04	3.59	0.90	0.71	0.62
30	-0.80	32.397	0.02	4.32	0.94	1.17	1.16
40	-0.87	32.420	0.05	4.69	0.87	1.17	0.84

Depth	POC	DOC	Ch.a	Ch.b	Ch.c	Pl.carot.	Phaeo.
0	-	-	3.16	0.22	1.14	0.54	0.24
1	-	-	3.84	0.25	1.50	0.64	0.00
3	-	-	5.26	0.32	1.85	0.97	0.75
5	-	-	5.88	0.39	2.09	1.03	2.56
7	-	-	5.72	0.29	1.95	1.08	1.27
10	-	-	6.34	0.32	2.56	0.80	3.20
20	-	-	4.77	0.11	1.50	1.12	1.04
30	-	-	3.91	0.15	1.29	0.79	0.77
40	-	-	2.94	0.15	1.00	0.50	1.00

Station	Date	Time	Sta. depth	Air temp.
83-1	16 Aug 83	0947	41	5.5
Cloud	**Wind**	**Ice cover**	**Snow cover**	**Secchi**
8	SE 5	-	-	8.5

Depth	Temp.	Salinity	NO_2-N	NO_3-N	PO_4-P	SiO_3-Si	NH_3-N
0	4.13	12.009	0.01	1.38	0.29	24.52	1.09
1	0.20	30.113	0.00	2.44	0.72	7.78	0.44
3	-0.10	31.039	0.00	2.35	0.62	6.60	0.65
5	-0.41	32.037	0.00	2.59	0.81	5.12	0.55
7	-0.50	32.226	0.05	2.92	0.65	4.63	0.69
10	-0.55	32.315	0.03	3.10	0.72	4.63	0.87
20	-0.90	32.478	0.01	5.01	1.05	3.55	1.31
30	-0.95	32.513	0.00	5.31	1.33	8.07	1.45
40	-0.89	32.544	0.07	5.17	0.74	8.17	1.60

Depth	POC	DOC	Ch.a	Ch.b	Ch.c	Pl.carot.	Phaeo.
0	-	-	1.21	0.41	0.75	0.18	0.00
1	-	-	4.20	0.77	1.57	0.98	0.79
3	-	-	4.71	0.83	1.35	1.00	0.36
5	-	-	5.11	0.02	1.66	1.27	2.83
7	-	-	4.77	0.09	1.62	1.12	1.17
10	-	-	4.14	0.12	1.46	1.00	0.92
20	-	-	2.31	0.26	0.05	0.52	0.43
30	-	-	2.19	0.29	1.19	0.49	0.00
40	-	-	1.80	0.23	0.75	0.26	0.49

Station	Date	Time	Sta. depth	Air temp.
83-1	23 Aug 83	0950	48	6.7
Cloud	**Wind**	**Ice cover**	**Snow cover**	**Secchi**
6	NW 18	-	-	4.5

Depth	Temp.	Salinity	NO_2-N	NO_3-N	PO_4-P	SiO_3-Si	NH_3-N
0	1.40	31.661	0.01	0.10	0.35	1.63	0.38
1	1.02	31.864	0.02	0.07	0.42	2.03	0.00
3	0.90	31.904	0.00	0.09	0.38	1.63	0.00
5	-0.05	32.324	0.00	0.52	0.54	3.71	0.02
7	-0.35	32.416	0.03	1.61	0.59	5.29	0.00
10	-0.60	32.507	0.05	2.56	0.82	6.57	0.14
20	-0.80	32.574	0.06	4.33	0.89	9.34	0.62
30	-0.83	32.592	0.04	4.52	0.96	9.14	1.68
40	-0.63	32.604	0.07	4.51	0.89	8.94	0.86

Depth	POC	DOC	Ch.a	Ch.b	Ch.c	Pl.carot.	Phaeo.
0	-	-	4.36	0.19	1.59	0.68	0.35
1	-	-	5.38	0.27	1.83	0.93	1.25
3	-	-	5.07	0.50	1.96	0.72	1.24
5	-	-	7.64	0.40	2.35	1.39	1.54
7	-	-	7.02	0.33	2.10	1.46	0.92
10	-	-	6.46	0.32	2.06	1.26	0.44
20	-	-	2.77	0.23	1.03	0.62	0.49
30	-	-	1.97	0.26	0.68	0.43	0.41
40	-	-	1.75	0.16	0.79	0.54	0.49

Station	Date	Time	Sta. depth	Air temp.
83-1	30 Aug 83	0956	41	7.2
Cloud	**Wind**	**Ice cover**	**Snow cover**	**Secchi**
7	SE 5	-	-	6

Depth	Temp.	Salinity	NO_2-N	NO_3-N	PO_4-P	SiO_3-Si	NH_3-N
0	0.90	31.722	0.07	0.14	0.38	2.43	0.26
1	0.60	31.987	0.09	0.00	0.42	3.21	0.23
3	0.12	32.333	0.09	0.16	0.47	3.21	0.32
5	-0.01	32.418	0.10	0.40	0.45	3.94	0.23
7	-0.20	32.463	0.11	0.90	0.52	3.01	0.47
10	-0.35	32.510	0.08	2.01	0.66	3.50	0.50
20	-0.45	32.552	0.12	2.38	0.70	5.15	0.59
30	-0.42	32.572	0.12	3.57	0.82	6.22	1.01
40	-0.38	32.604	0.12	4.16	0.89	6.90	1.56

Depth	POC	DOC	Ch.a	Ch.b	Ch.c	Pl.carot.	Phaeo.
0	-	-	4.30	0.23	1.48	0.68	0.52
1	-	-	5.38	0.27	1.83	0.89	0.80
3	-	-	7.62	0.02	2.39	1.44	2.16
5	-	-	8.35	0.05	2.49	1.79	1.48
7	-	-	8.41	0.02	2.49	1.82	1.58
10	-	-	6.63	0.24	2.03	1.42	1.17
20	-	-	5.34	0.01	1.71	1.19	1.39
30	-	-	3.49	0.31	1.59	0.55	0.48
40	-	-	2.18	0.40	1.15	0.32	0.56

Station	Date	Time	Sta. depth	Air temp.
83-5	16 Mar 83	1435	46.5	-18
Cloud	**Wind**	**Ice cover**	**Snow cover**	**Secchi**
0	0	141	40	7

Depth	Temp.	Salinity	NO_2-N	NO_3-N	PO_4-P	SiO_3-Si	NH_3-N
0	-1.8	33.323	0.09	8.44	1.18	8.43	0.08
1	-1.8	33.258	0.06	8.45	1.10	7.26	0.95
3	-1.8	33.261	0.06	8.19	1.13	9.30	0.93
5	-1.8	33.223	0.07	8.49	1.13	9.69	0.83
7	-1.8	33.342	0.06	8.57	1.13	9.69	0.93
10	-1.8	33.272	0.08	8.55	1.13	8.23	0.95
20	-1.8	33.333	0.07	8.51	1.15	8.62	0.95
30	-1.8	33.277	0.07	8.51	1.10	12.59	1.16
40	-1.8	-	0.07	7.57	1.15	10.36	1.55

Depth	POC	DOC	Ch.a	Ch.b	Ch.c	Pl.carot.	Phaeo.
0	-	-	1.17	0.00	0.00	0.00	-
1	-	-	0.94	1.31	0.00	0.00	-
3	-	-	1.20	0.47	0.00	0.00	-
5	-	-	1.19	5.80	5.84	0.00	-
7	-	-	0.05	0.00	0.00	0.00	-
10	-	-	0.00	0.00	1.71	0.00	-
20	-	-	0.27	0.19	0.00	0.12	-
30	-	-	0.00	0.00	0.00	1.31	-
40	-	-	0.00	0.00	0.00	1.08	-

Station	Date	Time	Sta. depth	Air temp.
83-5B	19 Aug 83	0910	9	8.1
Cloud	**Wind**	**Ice cover**	**Snow cover**	**Secchi**
8	0	-	-	6

Depth	Temp.	Salinity	NO_2-N	NO_3-N	PO_4-P	SiO_3-Si	NH_3-N
0	2.20	21.279	0.03	2.34	0.56	16.35	2.01

Depth	POC	DOC	Ch.a	Ch.b	Ch.c	Pl.carot.	Phaeo.
0	-	-	0.73	0.12	0.19	0.08	0.08